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61. BY J. B. MOTT, NEOSHO, MO.—What will be the value of each letter of the alphabet if the product of all but a is $= 1$, all but b is $= 2$, all but c is $= 3$, all but d is $= 4$, and so on, to all but z is $= 26$.

62. BY DR. H. EGGERS, MILWAUKEE, WIS.—Given four lines in a plane: to inscribe a parallelogram within them with given direction of sides.

63. BY E. P. NORTON, ALLEN, MICH.—Coasting along shore, I struck upon a shoal, and wanting to ascertain its situation exactly, I took angles with my sextant, subtended by three objects on shore, as A, B and C , whose relative positions were as follows; the distance from A to B was 10 miles, from B to C 6 miles, and the angle ABC 150° ; now the angle, measured at the ship, between A and B , was 24° , and between B and C 16° . Required the distance of D , the ship's place, from each object by geometrical construction, and, calculation.

64. BY DAVID TROWBRIDGE, A. M., WATERBURGH, N. Y.—Find the maximum value of $\left(\frac{a}{x}\right)^x$ without the aid of the Calculus.

65. BY EDWARD S. FARROW, WEST POINT, N. Y.—The corner of a page is turned down, and in every position the area of the triangle is 2 square inchs; find the locus of the angular point.

66. BY ARTEMAS MARTIN, ERIE, PA.— A speaks the truth b times out of a ; B , d times out of c ; and C , n times out of m .

C says that B told him that A said a certain event transpired. Required the probability that the event occurred.

67. BY G. W. HILL.—Mt. Shasta in California, in form, is approximately a right cone whose altitude is 2 and the radius of its base 5 miles, and is composed of homogenous rock of density 2.75. What is the angular deflection of the plumb-line at the base of the mountain, the earth being supposed a sphere without rotation, 3956 miles in radius and of mean density 5.67.

68 BY W. C. CALDWELL. [From *Notes and Queries*, No. 2, by request.]

Let the radius vector of a spiral make a revolution and a half; then pass a curved surface through the locus of the spiral perpendicular to its plane; then place a light at the pole. Required the equation of the spiral when the rays of light are most focalized at the mouth of the spiral.